

## Subdivision Regulations Section 3.00 Design Standards

### SECTION 3.00: DESIGN STANDARDS.

**3.01 CHARACTER OF THE LAND.** The Board shall consider the physical character of the land involved, including soils types, slopes, drainage characteristics, exposure to sunlight and wind, wildlife habitat, potential views, and other such characteristics, in determining what action to take with respect to the application.

(A) An application to subdivide land of such character that it cannot, in the judgment of the Board, be safely used for the proposed purposes because of danger to public health or safety shall not be approved.

(B) Where the character of the land is not adequately considered, the Board may require modification of the application to enhance the function and quality of the development, or to reduce adverse impacts resulting from the development.

(C) Lots shall contain contiguous areas of developable land such that the driveway, building, water supply and sewage disposal, and other improvements can be constructed without filling of wetlands or other such adverse impacts, which could be eliminated by different subdivision design. The number of lots may be reduced by the Board to reduce adverse impacts. The Board shall have the authority to require design changes to minimize impacts regardless of the actions of other local or State permitting actions, such as the issuance of a permit to fill wetlands for a driveway crossing.

(D) Site lot lines shall generally be at right angles or radial to street lines.

**3.02 ROADS.** This section represents a compilation of sources on this complex and important subject. Among the sources are: Residential Street Design and Traffic Control (by Homburger, Deakin, et al; Institute of Transportation Engineers. Prentice Hall, Englewood Cliffs, NJ. 1989.) and "Neo-Traditional Neighborhood Design and Its Implications for Traffic Engineers," by Eva Lerner-Lam, Stephen P Celniker, Gary W. Halbert, Chester "Rick" Chellman, and Sherry Ryan, Compendium of Technical Papers, 61st Annual Meeting of the Institute of Transportation Engineers, 1991. Some of the text of this section is quoted from these sources, but there has been no attempt to provide specific quotations. The understanding of these authors is greatly appreciated by the Town of Newmarket. >> class="Section1"

(A) **Design Objectives.** Before road design can be addressed, the Town's design objectives must be laid out as clearly as possible so that the design professionals can understand what is expected of them, and to develop a better understanding of the multiple demands placed on road design. First and foremost, roads must be recognized as complex public spaces, which accommodate and impact traffic, parking, pedestrians, bicyclists, and aesthetics, among other things. Road design objectives are further categorized and specified as follows:

(1) **Traffic Function.** Roads must accommodate safe access to properties, convenient and efficient pickups and deliveries, emergency access, maintenance services, and other such uses. The overall road system should provide for sufficient number and layout of collectors and arterials to handle through traffic flow as one means of protecting local residential streets from through traffic. Further, local residential streets shall be linked to traffic carrying streets in a way that simultaneously provides good access to other parts of the community and region and minimizes the chances of residential streets' use by through traffic. Further, residential streets should be protected from vehicles moving at excessive speeds, typically greater than 25 to 30 MPH. The design engineer is challenged to balance this last provision against RSA 265:60,II, which dictates higher speed limits in most cases. Proper access management is essential in protecting the traffic capacity of arterial roads.

(2) **Road Layout.** The general layout of roads shall be a regular, inter-connected, geometric, angular (as opposed to curvilinear) pattern so that there are alternative routes to most, if not all destinations. The layout of proposed roads shall provide for the continuation of the principal streets in adjoining areas, if applicable. The number of permanent cul-de-sacs shall be minimized. Suitable connections and reservation for future connections to remaining lands and adjacent lots

shall be provided. Layout geometry shall be designed to take advantage of the topography and proposed future development patterns, creating vista terminations and improving the view of, and the view from buildings and other prominent vistas. Layout shall also be carefully designed to avoid creation of a situation where the local road is used for through traffic flow.

(3) Scale. The scaling of the facility must facilitate the appropriate level of sharing of road use among cars, walkers, bicycles, emergency vehicles and others. The final product shall permit comfortable and safe pedestrian and bicycle movements as well as motorized vehicular movements, and shall protect vulnerable users such as children, the disabled, and the elderly.

(4) Aesthetics. Road design should enhance the overall aesthetics of the neighborhood through well-designed street layout and landscaping. Additionally, recreation areas in the form of commons or public squares should be used as focal points and vista terminations. Aesthetics must be achieved through the thoughtful integration of all aspects of design, and cannot simply be "added on" to a design.

(5) Quality Construction. Regardless of the outcome of the more policy-oriented layout and function issues of the road system, the construction of roads shall be of high quality. Roads shall be constructed to standards suitable for the climate, the environment in which they are built, and for the proposed use. The resulting road should require a minimal amount of maintenance for quite many years.

(B) Design Standards. Although it is the intent of these Regulations to provide design parameters to guide overall design, it is the responsibility of the engineer designing the road to apply her or his professional expertise in creating the design. Additionally, the Town shall have another engineer review the design for compliance with the purposes and controls of this Regulation as well as with accepted engineering practices. It should be noted that the Board expects to create only local roads, and that more suitable standards for design and construction shall be required for collectors and arterials should such functions be proposed or expected.

(1) Design speed of local roads shall be 30 MPH. This may be altered where necessary to comply with RSA 265:60,II(c), except that 30 MPH shall be the maximum design speed if the speed limit can be reduced to 30 MPH or less per RSA 265:62.

(2) The grade of a road shall not be less than 1% nor greater than 8%. The maximum grade of a road approaching an intersection shall be 3% within 50' of the intersection.

(3) All roads shall have a road crown of at least 1/4" per 1'.

(4) All roads shall be paved. The minimum width of pavement per travel lane shall be 12'. Curbing shall be required as specified in §3.03(A) or §3.03(B). Where no curbing or where Cape Cod curbing is required, gravel shoulders at least 4' in width shall be required on each side of the road.

(5) The centerline of a cul-de-sac shall be aligned with the centerline of the street. The surface of the pavement shall slope away from the center of the cul-de-sac. Temporary cul-de-sacs shall be provided, with easements for their construction and use as appropriate, in locations where future connections are planned but cannot be provided at the time of development. Where connections can be made, they shall be made.

(6) Except as provided herein, driveway locations shall not be specified on the subdivision plan, but the sight distances along the frontage shall be protected. Safe stopping and intersection sight distances shall meet or exceed the standards specified in the Transportation and Traffic Engineering Handbook (ITE, Second Edition, Prentice-Hall, Englewood Cliffs, NJ, 1982, pp 590-3).

(a) For access onto State highways, driveway location consistent with the State Driveway Permit shall be shown.

(b) For subdivisions fronting on arterial roads, the number of driveway accesses onto the arterial road shall be minimized:

- [1] access onto internal roads rather than the arterial road shall be required to the extent possible; and
- [2] a single shared driveway shall be required for adjoining lots, which must access directly onto the arterial road.
- (7) No point along a road centerline shall be more than 1,000' from a single point of access in the road network. This requirement is similar to a maximum cul-de-sac length standard, but applies more broadly to the cul-de-sac and the adjacent road network.
- (8) Roads shall intersect at 90 degrees, plus or minus 15 degrees.
- (9) Other safety provisions may be required if appropriate, including but not limited to curbing and guardrails.
- (10) The designer shall prepare a report which documents how the proposed design complies with the design Objectives listed in §3.02(A).

(C) Property Issues.

- (1) The minimum width of any road right-of-way shall be 50'. A larger width may be required where conditions warrant. Additionally, flairs or curve radii may be required at intersections where such provisions would be beneficial.
- (2) Reserve strips which restrict access to the right-of-way from adjacent lots or roads shall be prohibited.
- (3) Easements for cut and fill slopes, drainage, water lines, sewer lines and other such improvements shall be provided as appropriate.
- (4) The application shall specify ownership and responsibility for maintenance of the right-of-way and all improvements therein. Subdivision approval in no way implies Town acceptance of any road or right-of-way, and in no way obligates the Town in any future consideration of such acceptance.

(D) Construction.

- (1) Only that portion of the right-of-way shall be cleared and grubbed as is necessary to meet safety requirements. Where possible, preservation of existing vegetation, ground cover and especially trees is highly desirable. The extent of clearing shall be noted on the plans. Excavation of roadbeds shall consist of removing earth or ledge to a depth of at least 2' below the finished roadbed grade shown on the final profile. Filled roadbeds shall be formed by spreading successive layers of fill material not greater than 6" in depth. Each layer shall be compacted to a density of at least 95% of maximum density before another layer is begun. Material containing loam, forest litter, wood, roots, or other substances that will not provide a stable bed or embankment shall not be used. Broken ledge may be used in layers in fills over 4' in thickness. The voids in each layer shall be filled with earth or spalls. Broken ledge or boulders larger than 1/2 cubic yard shall not be placed within 2' of the finished grade.
- (2) Types of materials and methods of construction shall be in accordance with "New Hampshire Standard Specifications," 1983, Section 304, hereby incorporated into this Regulation by reference.
- (a) Minimum base course depth shall be not less than 18" of gravel, topped with 3" of crushed gravel. Additional base material may be required depending on the nature of the land.

(b) Two courses of pavement shall be required:

[1] base course of not less than 2" thickness. The base course pavement shall go through one winter freeze-thaw cycle prior to adding the wear course so that problems can be identified and corrected properly.

[2] wear course of not less than 1" thickness.

(3) Stumps and other debris shall not be disposed of in the right-of-way.

(4) Bridges with a span of 10' or more shall be designed to HS-20 loading specifications (AASHTO Specifications, hereby incorporated into these regulations by reference).

(5) Side slopes cut in soil above the finished roadway shall not exceed a ratio of 3' horizontal to 1' vertical, and shall be graded, covered with 4" (compacted depth) of topsoil, and suitably seeded. Side slopes in ledge above the finished roadway shall not exceed a ratio of 1' horizontal to 2' vertical. Embankment slopes away from the edge of the finished roadway shall not be constructed at a ratio steeper than 4' horizontal to 1' vertical unless the horizontal length exceeds 10', in which case a ratio of 3' horizontal to 1' vertical may be used.

(6) Because of the nature of the design and construction of roads, certain design modifications are made in the field on virtually every construction project. The Board acknowledges that such changes will be necessary from time to time, and authorizes the inspecting engineer representing the Town to exercise their professional judgment in making such changes, and asks that the engineer remember the purposes of this Regulation and this Section in making their judgment.

(E) Traffic Impact Analysis.

(1) A traffic impact analysis shall be required in the following circumstances:

(a) the subdivision involves the creation of 20 or more residential lots or residential units;

(b) the subdivision is intended to facilitate non-residential land uses; or

(c) other, as deemed necessary by the Board.

(2) The traffic impact analysis shall be prepared by a NH licensed Professional Engineer. This analysis shall be prepared to meet, at a minimum, the "Guidelines for Traffic Impact Analysis" (by the Strafford Regional Planning Commission, dated July 1986: copy available for viewing at Town Hall).

(F) Other.

(1) Grade Stakes. The applicant shall be responsible for placing grade stakes at 50' intervals adjacent to the road course where there are abrupt changes in grade and at 100-foot intervals where a more level contour is present. Each stake shall be securely placed where it will not be disturbed by construction. Each stake will indicate a station number, its offset from the centerline of the road, and the extent of cut or fill to the finished centerline grade. Grade stakes shall be preserved until the completion of the road. If grade stakes are removed or damaged to the extent that they cannot be read, it shall be the responsibility of the applicant to replace them.

(2) Road Names. Proposed road names shall not duplicate any existing road name in Newmarket, and shall be approved in advance by the Town Council. Each road name shall be adequately identified with a road name sign at each intersection. Upon completion of the road, the applicant shall notify the Town Clerk, who shall notify the Commissioner of

the NH Department of Transportation of the new road, as required per RSA 231:133,III.

(3) Clean-up. Before release of any financial security, a road shall be cleaned up, by whatever means necessary, so that it is left in a neat and presentable condition. Construction-related debris of all kinds, both natural and man-made, shall be completely removed from the right-of-way.

(4) All roads shall have such traffic control signs as are necessary to provide for safety and efficiency. It shall be the applicant's responsibility to provide and install all required signs.

(5) Subdivision along a Class VI road, or any private road, shall not be approved unless the applicant upgrades such road to meet the design standards of this Regulation. The provisions of RSA 231:28 may be applicable.

(6) Road Acceptance. Acceptance of any road by the Town is the sole responsibility of the Town Council, and approval of a subdivision plan by the Planning Board shall not imply or compel acceptance of the road by the Town. While a private road, the applicant shall make adequate provisions for the on-going maintenance of the road.

3.03 DRAINAGE. All roads shall be provided with adequate provisions for storm water drainage to removal storm water and prevent flooding of the road and erosion of adjacent surfaces.

(A) Connection to the municipal storm drainage system shall be required if available within 100 feet of any boundary of the property, or as otherwise determined necessary by the Board.

(1) The system shall be designed and constructed in accordance with standards and specifications of the Town of Newmarket.

(2) Where drainage facilities are not available at the time of application but will become available in the future, as indicated by inclusion in the Capital Improvements Program, the applicant shall install a municipal storm drain system, ready for connection to the municipal system at the time of its expansion, and shall provide for temporary control of drainage in the interim period.

(3) Storm water runoff shall be carried away in a subsurface piped storm sewer system. Such drainage facilities shall be located in the street rights-of-way where feasible. Where topography or other conditions are such as to make this impractical, perpetual unobstructed easements for future maintenance, repair and upgrade of the system shall be provided across all properties. Such easements shall be 25' or more in width, and shall have satisfactory access to the road. Drainage easements shall be carried from the road to a natural watercourse or other drainage facility.

(4) The road design shall be modified to include curbing to channel storm water into the drainage system. Where curbing is required, it shall be granite. (Amended May 23, 2000)

(B) Lacking connection to the municipal storm drainage system, the subdivision shall be designed with provisions for retention and gradual release of storm water. All additional storm water and runoff which results from the proposed development shall be retained on-site and shall not drain onto adjacent roads, nor onto adjacent properties or into waterways in an amount which exceeds predevelopment levels unless appropriate drainage easements are obtained.

(1) Where the road frontage of the lots in the subdivision, or a portion thereof, averages 150' or more per lot, an open ditch and swale drainage system may be used.

(2) Where the road frontage of the lots in the subdivision, or a portion thereof, averages less than 150' per lot, an enclosed drainage system shall be required. Additionally, the road design shall be modified to include a Cape Cod curb to channel storm water into the drainage system. There shall be no breaks in the Cape Code curb as this would eliminate its effectiveness for drainage control. Driveways shall require travel over the Cape Cod curb.

(C) Drainage plans and a written report, prepared and certified by a licensed NH Professional Engineer, shall be submitted with the application. Design and construction of drainage facilities shall be in accordance with "New Hampshire Standard Specifications, 1983", Sections 603, 604 and 605, hereby incorporated into this Regulation by reference.

(D) Drainage facilities shall be designed to accommodate a 25-year storm event. A culvert or other such component shall be large enough to accommodate potential runoff from its entire upstream drainage area. On-site retention or detention facilities may be required to prevent overloading of existing downstream facilities, or improvement to the downstream facilities may be required. No standing water shall be permitted in ditches, culverts or catch basins. No water shall be permitted to run across road surfaces.

3.04 PEDESTRIAN, BICYCLE AND TRANSIT AMENITIES. Adequate provisions shall be made to accommodate pedestrians, bicyclists and transit service.

(A) Pedestrians. For subdivisions near the downtown, sidewalks shall be provided as follows:

(1) Sidewalks shall be installed along Route 108 in front of any lots fronting on the road between its intersection with Bennett Way to the south and to the Durham town boundary to the north.

(2) Sidewalks shall be installed along Route 152 in front of any lots fronting on the road between its intersection with Route 108 to the east and to its crossing of the Piscassic River to the west.

(3) Sidewalks shall be installed along one side of any new road constructed within 1/2 mile of either of the portions of Route 108 or Route 152 listed in subsections (1) or (2) above.

(4) To the extent the development will be the primary beneficiary from adequate connection to the main sidewalk network in Town, connection from the site to the network may be required by the Board.

(B) Bicycles. Road design shall take adequate consideration of the need to safely accommodate bicyclists in residential neighborhoods, in the village, and in commercial areas.

(C) Transit. The Town desires to encourage transit use. Therefore, any subdivision, which would create 25 or more lots or residential units, shall contact the manager of the COAST system to determine if facilities or design provisions to accommodate transit service to the development are necessary now or in the near future. Future expectations shall be based only upon adopted capital and operations plans for COAST and/or the Seacoast Metropolitan Planning Organization. The applicant shall provide all needed facilities and design changes.

3.05 SURVEY MONUMENTATION. Proper and complete survey monumentation shall be installed on the properties involved prior to final approval of the application.

(A) Granite bounds shall be set at the intersection of existing or proposed lot sidelines with existing or proposed streets. The size of such bounds shall be 4" by 4" by 30", with a 3/8" drill hole in the center. The surveyor shall excavate a hole sufficiently large enough to properly place the bounds securely in the ground.

(B) Iron pins (pipe or rod) are to be placed at all property line corners and angles, and at all points of curvature and points of tangency. The size of pins shall be 1/2" diameter by 30" long, and shall be driven into the ground at accurate locations, leaving 2" exposed. All newly installed pins shall include a surveyor's "cap" to help identify their location in the field.

(C) Certificate of Monument Installation. The applicant's surveyor shall certify in writing that the bounds and pins have been installed according to the submitted plan, using the form entitled "Certification of Monument Installation." This form must be completed and submitted to the Board prior to receipt of final approval of the application. A copy of this form is

contained in §6.00.

3.06 WATER SUPPLY. All subdivisions shall provide adequate water supply for consumption. Water supply for fire safety is addressed separately in §3.10(B).

(A) Municipal Water Supply. The applicant shall comply with the Newmarket Water System Ordinance. In the absence of such a code, connection to the system shall be required if distribution lines are located 100' of any part of the original lot, and such connection shall conform with all requirements established by the Public Works Director.

(B) Non-Municipal Water Supply. In areas outside of the municipal water supply service area, provisions shall be made for on-site water supply or connection to a community water supply system. The well location and its protective radius, if required by the State, shall be indicated on the plat. All community water supply systems and facilities shall be designed by a NH licensed Professional Engineer specializing in Civil Engineering. Unless owned by the Town, the Town shall not be responsible for a community water system.

(C) All lots shall have sufficient water supply to provide for consumption.

3.07 SEWAGE DISPOSAL. All subdivisions shall provide for adequate and sanitary disposal of sewage.

(A) Municipal Sewer Service Area. Compliance with the Newmarket Sewer Use Ordinance shall be required. In the absence of such a code, connection to the system shall be required if collection lines are located within 100' of any part of the original lot, and such connection shall conform with all requirements established by the Public Works Director.

(B) In areas outside of the municipal sewer service area, sufficient area shall be reserved for on-site sewage disposal. Unless otherwise specified by the State, a 4,000 square foot area suitable for the siting of a septic system shall be designated on each lot.

3.08 UTILITIES. Utilities shall generally be located within the road right-of-way, well behind any curb and never closer than the ditch line.

(A) Where utility transmission lines are not located within the road right-of-way, perpetual unobstructed easements for future maintenance, repair and upgrade of the system shall be provided across all properties. Such easements shall be 15' or more in width, and shall have satisfactory access to the road.

(B) Easements for proposed or future utility connections to adjacent properties may be required by the Board.

(C) Street lights shall be required at every street intersection. Additional mid-block lighting may be required as appropriate.

(D) In accordance with RSA 674:36(III), all utilities shall be installed underground. The installation of overhead wire utility poles are prohibited. Where connections to existing overhead utilities are required, the utilities must be submerged as soon as practical within the developed site. (Amended 08/14/01)

3.09 LANDSCAPING. Landscaping requirements for subdivision approval are limited to establishment or re-establishment of suitable vegetative ground cover to ensure site stability, and to provision of street trees where needed.

(A) Vegetative Ground Cover. No disturbed area shall be left permanently exposed and unprotected. Sufficient topsoil shall be provided and suitable grasses or other vegetation shall be established as quickly as possible to stabilize the site

and prevent excessive erosion. Interim erosion control measures shall be provided as needed, but shall be removed when the ground cover is established and the site is stabilized.

(B) **Street Trees.** Where an road is proposed through an open field, or where the existing vegetation will be removed or is of a character such that the road will get no shade in the summer, street trees shall be planted at regular intervals, not to exceed 100', along both sides of the right-of-way where appropriate. Such trees shall have a caliper of at least 3" at a point six inches above the top of the root ball, and shall be of a suitable hardwood species to ensure that the road is not shaded in the winter. Further, the Board may require removal of coniferous trees along the road where it finds that shade from such trees could cause icing problems.

3.10 **EMERGENCY SERVICES.** There shall be adequate provisions for emergency service access to all lots. There may be some trade-offs required when balancing the desire to maintain the scale of a neighborhood versus the desire to provide access sufficient for emergency vehicle access.

(A) All applicants shall provide a copy of the subdivision plan to the Police Department and Fire Department for their reviews and comments. While their input will weigh heavily, the Board reserves the final authority to make design decisions.

(B) **Water for Firefighting.** At a minimum, there shall be a source of water for firefighting along a Class V or better road within 1 mile of each lot or building site proposed. Sources shall be limited to the following:

- (1) a fire hydrant connected to the municipal water supply system;
- (2) a fire hydrant connected to a community water system, which has sufficient storage volume and flow;
- (3) a dry hydrant connected to an underground storage tank with a sufficient water supply and capacity;
- (4) a dry hydrant in a fire pond or other standing water body with sufficient volume; or
- (5) other as determined acceptable to the Fire Chief.

3.11 **RECREATIONAL AMENITIES.**

(A) **Neighborhood Parks.** Recreation lands in close proximity to residences are an important amenity in neighborhoods. In general, small areas of land reserved for open space and passive recreation, or developed for other forms of active recreation shall be required for each Major Subdivisions which is not designed as an Open Space Development and which creates, or has the potential to create, 25 or more lots or residential units, as follows:

- (1) At a minimum, one park shall be provided. For subdivisions, which have the potential for 50 or more residential lots or units, two parks shall be provided.
- (2) The area of all park lots shall include at least two acres of contiguous developable land.
- (3) Where possible, the design and intended use of the neighborhood parks should be consistent with the layout of roads, as is discussed in §3.02(A)(4).
- (4) The applicant shall place a permanent deed restriction on each recreation lot, deeming it a non-buildable lot. Further, the deed restriction shall specify permitted types of recreation development are permitted. The deed restriction shall be shown on the plat, and shall be filed at the Rockingham County Registry of Deeds.



(5) Ownership.

(a) The parks, if owned and maintained privately, may have restricted access. Further, provisions shall be made to ensure sufficient funding for ongoing maintenance of the park and its facilities, for payment of property taxes, and other such expenses.

(b) If such areas are offered to and are accepted by the Town, they shall be open to the general public, and there shall be sufficient nearby on-street parking.

(6) If acceptable to the Board, public access to Great Bay or the Lamprey River may be substituted for all of the required parks.

(B) Public Access. It is in the public interest to establish and maintain public accesses to Great Bay and the Lamprey River. Such access may include provisions for direct water access, or may be for other uses, which are enhanced by close proximity to the waters such as walking paths, picnic areas, and scenic overlooks. Where such amenities can be incorporated into the application, it would be appreciated by the Board and the Town. To qualify, public accesses must be permanently available to the general public.

3.12 MITIGATION OF IMPACTS. Where, in the opinion of the Board, the off-site impacts of a proposed development would adversely affect the public health, safety, convenience, prosperity or general welfare of the Town, the Board may require off-site improvements to mitigate the adverse impacts.

3.13 FLOODPLAIN STANDARDS. All subdivisions and other proposed new development shall be designed to be reasonably safe from flooding. If any portion of the property subject to an approval under this Regulations is within the 100-year floodplain, the proposal shall:

(A) Be designed consistent with the need to minimize flood damage;

(B) Have all public utilities and facilities such as water, sewer and electrical systems located and constructed to minimize or eliminate flood damage; and

(C) Provide drainage systems adequate to reduce exposure to flood hazards.

3.14 RESIDENTIAL OPEN SPACE DESIGN.

(A) open space plan evaluation criteria. In evaluating the layout of house sites and open space, the following criteria will be considered by the Planning Board and Technical Review Committee as indicating design appropriate to the site's natural, historic, and cultural features, and meeting the purposes of this ordinance. Diversity and originality in layout shall be encouraged to achieve the best possible relationship between development and conservation areas. Accordingly, the Planning Board shall evaluate proposals to determine whether the proposed preliminary plan:

(1) Protects and preserves all floodplains, wetlands, and steep slopes from clearing, grading, filling, or construction (except as may be approved by the town as part of the application).

(2) Preserves and maintains mature woodlands, existing fields, pastures, meadows, and orchards, and creates sufficient buffer areas to minimize conflicts between residential and agricultural uses. For example, locating houselots and driveways within wooded areas is generally recommended, with two exceptions.

(a) Where significant wildlife habitat or mature woodlands that raise an equal or greater preservation concern, as determined by the Board in accordance with intent of the ordinance.

- (b) The second involves predominantly agricultural areas, where remnant tree groups provide the only natural areas for wildlife habitat.
- (3) If development must be located on open fields or pastures because of greater constraints in all other parts of the site, dwellings should be sited on the least prime agricultural soils, or in locations at the far edge of a field, as seen from existing public roads. Other considerations include whether the development will be visually buffered from existing public roads, such as by a planting screen consisting of a variety of indigenous native trees, shrubs, and wildflowers (specifications for which should be based upon a close examination of the distribution and frequency of those species found in a typical nearby roadside stone wall).
- (4) Maintains or creates an upland buffer of natural native species vegetation of a depth sufficient to protect and maintain the ecological stability of adjacent wetlands and surface waters, including creeks, streams, springs, lakes and ponds. The sufficiency of a buffer shall be set at 100 feet unless waived by the Planning Board. The waiver request shall be completed by a qualified environmental professional using the guidance and framework laid out in the document entitled "Buffers for Wetlands and Surface Waters: A Guidebook for New Hampshire Municipalities". Available from Newmarket Town Hall or online at:
- <http://www.nh.gov/oep/resourcelibrary/documents/buffershandbook.pdf>
- (5) Designs around existing stone walls between fields or meadows, and minimizes impacts on large woodlands (greater than five acres), especially those containing many mature trees or a significant wildlife habitat, or those not degraded by invasive vines. Also, woodlands of any size on highly erodible soils with slopes greater than 10% should be avoided. However, woodlands in poor condition with limited management potential can provide suitable locations for residential development. When any woodland is developed, great care shall be taken to design all disturbed areas (for buildings, roads, yards, septic disposal fields, etc.) in locations where there are no large trees or obvious wildlife areas, to the fullest extent that is practicable.
- (6) Leaves scenic views and vistas unblocked or uninterrupted, particularly as seen from public thoroughfares. For example, in open agrarian landscapes, a deep "no-build, no-plant" buffer is recommended along public roads where those views or vistas are prominent or locally significant. The concept of "foreground meadows," with homes facing the public thoroughfare across a broad grassy expanse works) is strongly preferred to mere buffer strips, with or without berms or vegetative screening. In wooded areas where the sense of enclosure is a feature that should be maintained, a deep "no-build, no-cut" buffer should be provided, to preserve existing vegetation.
- (7) Avoids the concentrated siting of new construction on prominent hilltops or ridges, by taking advantage of lower topographic features.
- (8) Protects wildlife habitat areas of species listed as endangered, threatened, or of special concern by State or Federal law.
- (9) Designs around and preserves sites of historic, archaeological, or cultural value, and their environs, insofar as needed to safeguard the character of the feature, including stone walls, spring houses, barn foundations, cellar holes, earthworks, and burial grounds.
- (10) Protects rural roadside character and improves public safety and vehicular carrying capacity by avoiding development fronting directly onto existing public roads. Establishes buffer zones along the scenic corridor of rural roads with historic buildings, stone walls, and so on.
- (11) Landscapes common areas (such as community greens), cul-de-sac islands, and both sides of new streets with native species shade trees and flowering shrubs with high wildlife conservation value.
- (12) Includes a pedestrian circulation system designed to assure that pedestrians can walk safely and easily on the site,

between properties and activities or special features within the neighborhood open space system. Roadside footpaths should connect with off-road trails, which in turn should link with potential open space on adjoining undeveloped parcels (or with existing open space on adjoining developed parcels, where applicable).

(13) Fragmentation of open space should be minimized so that these resource areas are not divided into numerous small parcels located in various parts of the development. To the greatest extent practicable, this land shall be designed as a single block with logical, straightforward boundaries. Long thin strips of conservation land shall be avoided, unless the conservation feature is linear or unless such configuration is necessary to connect with other streams or trails. The open space shall generally abut existing or potential open space land on adjacent parcels (such as in other subdivisions, public parks, or properties owned by or eased to private land conservation organizations). Such subdivision open space shall be designed as part of larger contiguous and integrated greenway systems, as per the policies in the Open Space Protection and Management Plan and the Newmarket Master Plan.

## (B) Open Space Use and Management

(1) Natural features shall generally be maintained in their natural condition, but may be modified to improve their appearance, or restore their overall condition and natural processes, as recommended by natural resource professionals and in compliance with an approved land stewardship plan. Permitted modifications may include:

- (a) Woodland management.
- (b) Reforestation.
- (c) Meadow management.
- (d) Wetlands management.
- (e) Streambank restoration and protection.
- (f) Buffer area landscaping.

(2) To preserve scenic views, ridge tops and hilltops should be contained within common open space wherever possible. Trees shall not be removed from ridge tops or hilltops.

(3) The boundaries of common open space shall be marked by natural features wherever possible, such as stonewalls, edges of woodlands, streams, or individual large trees. Where no such natural demarcations exist, additional plantings, fences, or other landscape features should be added to enable residents or the public, if applicable, to distinguish where common open space ends and private lot areas begin. Where structural demarcations, such as fences, are used, they shall be the minimum needed to accomplish this objective.

(4) Trails in common open space that are located within 50 feet of homes in the development shall be identified by plantings, markers, fences, or other landscape features.

(5) No portion of the minimum required open space shall be less than 50 feet in width unless the area contains a trail, or a trail to be built.

(6) Safe and convenient pedestrian access and access for maintenance purposes shall be provided to common open space areas that are not used for agricultural purposes, in accordance with the following:

- (a) At least one access point per 10 houses shall be provided, having a width equal to or greater than the minimum width

of a lot within the development. This width may be reduced to no less than 50 feet if the applicant can demonstrate that, due to natural site constraints, meeting the width requirement would run counter to the objectives of this Section.

(b) Access to common open space used for agriculture may be restricted for public safety and to prevent interference with agricultural operations.

(7) Maintenance and operation of common facilities.

(a) A plan and narrative for the use, maintenance, and insurance of all common facilities, including provisions for funding, shall be provided to and approved by the Planning Board prior to final approval. Such plan shall:

(1) Define ownership.

(2) Establish necessary regular and periodic operation and maintenance responsibilities.

(3) Estimate staffing needs, insurance requirements, and other associated costs and define the means for funding the same on an on-going basis.

(4) Include a Land Stewardship Plan specifically focusing on the long-term management of open space lands.

(b) In the event that the association established to own and maintain common areas and facilities, or any successor organization thereto, fails to properly maintain all or any portion of the aforesaid common areas or facilities, the Town may serve written notice upon such association setting forth the manner in which the association has failed to maintain the aforesaid common areas and facilities. Such notice shall set forth the nature of corrections required and the time within which the corrections shall be made. Upon failure to comply within the time specified, the association, or any successor organization, shall be considered in violation, in which case the Town shall have the right to enter the premises and take the needed corrective actions. The costs of corrective actions by the Town shall be assessed against the properties that have the right of enjoyment of the common areas and facilities. This authority shall be documented in the application and the documents establishing the association. The recitation shall include a description of the parcel, enforcement authority under RSA 674:21-a, and the Land Stewardship Plan.

(8) The Land Stewardship Plan shall include a narrative, based on the site analysis required by the special use permit, describing:

(a) Existing conditions, including all natural, cultural, historic, and scenic elements in the landscape;

(b) Objectives for each common open space area, including:

(1) The proposed end state for the area and the measures proposed for achieving the end state.

(2) Proposed restoration measures, including:

(a) Measures for correcting increasingly destructive conditions, such as erosion.

(b) Measures for restoring historic features.

(c) A maintenance and operations plan identifying activities needed to maintain the stability of the resources, including mowing schedules, weed control measures, planting schedules, and clearing and cleanup measures and schedules.

(C) Design Standards For Building Sites

(1) All lots in a cluster shall have access from interior streets.

(2) All lots shall abut common open space to the front or rear. Common open space across a street shall qualify for this requirement.

(3) In locating house sites, disturbance to woodlands, stonewalls, and individual mature trees shall be minimized. However, when the objective is to preserve prime farmland soils and large areas of contiguous land suitable for agricultural use, dwellings may be located within woodlands, provided that no more than 20 percent of a single wooded lot is cleared for the construction of a dwelling, driveway, garage, storage building, well, and private onsite waste treatment system.

(D) Design Guidelines For Roadways, Shared Accessways, Trails, And Other Facilities.

(1) General Design. All roadways shall be designed in accordance with the Newmarket Subdivision Regulations.

(2) Connectivity. It is the intent of this ordinance that most open space design developments do not include provisions for connectivity of roadways where the majority of house sites are located. If connectivity is desired by the Board for future development purposes and/or reasons of health and safety, the Board may require secondary roads to serve the house sites and encourage the use of separate connector roads to serve as the mode of interconnectivity.

(3) Design Flexibility. The Board shall consider greater flexibility in specific adherence to design requirements related to curve and tangent requirements, pavement width, right-of-way width and clearing requirements. This flexibility shall be exercised in the pursuit of site design that minimizes impacts to the site and provides flexibility in siting dwellings.

(E) Procedures For Conservation Subdivisions

Process Overview. The sequence of actions prescribed in this article is as listed below. These steps shall be followed sequentially and may be combined only at the discretion of the Planning Commission:

1. Pre-application discussion - technical review.
2. Environmental resource and yield plan submittal
3. Yield equation and yield plan review and recommendation.
4. Submission hearing, preliminary plan, and yield equation/plan approval.
5. Sitewalk.
6. Application Review.
7. Decision.

(1) Pre-Application Discussion. A pre-application discussion is strongly encouraged between the applicant, the site designer(s), and members of the Planning Board. The purpose of this informal meeting is to introduce the applicant and

the site designer(s) to the regulations and procedures and to discuss the applicant's objectives in relation to the town requirements. The town may designate a consultant experienced in development design and in the protection of natural features and greenway lands to meet with the applicant and to attend meetings as authorized under these regulations and RSA 676:4.

(2) Environmental Resource and Yield Plan submittal. At the Pre-application discussion the applicant shall submit the yield equation and environmental resource yield plan for technical review. The submissions shall not be required to meet engineering specifications or surveying standards for purposes of the yield plan, however, the environmental characteristics of the site shall be determined and delineated in accordance with applicable professional standards.

(a) Environmental Resource and Yield Plan. The application shall include a sketch plan showing the delineation of environmental resources on the site and the maximum number of dwelling units that would be reasonably achievable under the zoning ordinance and subdivision regulations for a conventional design, consistent with the minimum lot size, lot widths, set backs, and all other applicable provisions, purposes, and objectives of the zoning ordinance and subdivision regulations in place at the time of the submission and compare it to the number of dwelling units proposed. This plan is intended to utilize required design information for the open space application and overlay a sketched conventional subdivision. At a minimum, the following information shall be provided:

- i. Property boundaries;
- ii. Streams, rivers, lakes, wetlands, as defined in this ordinance and associated zoning buffers;
- iii. Topographic contours at 2-foot intervals;
- iv. General vegetation characteristics;
- v. General soil types showing with reasonable certainty, the ability to provide on-site septic facilities if not on public sewer service;
- vi. A sketch of lot lines and setbacks showing reasonable building envelopes;
- vii. A sketch of potential rights-of-ways for roads and utilities in compliance with the subdivision regulations;
- viii. Archaeological sites, cemeteries and burial grounds
- ix. Land on the parcel that has been set aside from development as part of a conservation easement, development agreement, or other similar legal restriction;
- x. Existing roads and structures;
- xii. Existing abutting conservation land and trails.
- xiii. Waivers that would be required for approval and statement of justification for the waiver under the relevant provision of the applicable subdivision regulation.
- xiv. Wetland impacts that would be required for conventional design.

(b) Development Yield Equation. The maximum number of lots is determined by dividing the area of the tract of land by the minimum lot size specified in the underlying zoning district. In making this calculation, the following shall apply to the

Developable Land Base as required by Section 6.03(E):

- i. A 10% reduction in the developable land base to account for public facilities (roads, drainage, and utility easements);
- ii. A complete removal of all land on the parcel that has been set aside from development as part of a conservation easement, development agreement, or other similar legal restriction;
- iii. Isolated pockets of upland that are reachable only through a wetland fill that requires an impact to Prime Wetlands, over 6000 square feet of impact to very poorly drained soils, over 12,000 square feet in impact to poorly drained soils or an aggregate of over 1 (one) acre in impact to wetlands of any types in the entire project.

(c) Delineation of Open Space & the Developable Land Base. The calculation of the Developable Land Base, as required by Section 6.03 and reviewed under 6.06(C)(3) of the Newmarket Zoning Ordinance sets the baseline for the open space calculations. This calculation is meant to be a numerical calculation that relates to an actual physical description of the area of the parcel to be protected as open space. The area of the parcel that is to be set aside must meet the minimum requirements of the developable land base calculations. As a practical matter, the open space will likely be larger given the inclusion of wetlands in the final parcel. The calculation insures that adequate uplands and "developable" land is set aside to further the multiple purposes of the open space design ordinance.

(3) Yield equation and yield plan review and recommendation. The Planning Department shall use the environmental resource and yield plan and yield equation submission to make a recommendation on the validity of the yield plan and a preliminary recommendation on the delineation of the restricted open space in accordance with these regulations and the Open Space Design Ordinance. The Planning Department shall forward a recommendation on for Planning Board review at the submission hearing.

(4) Submission hearing, preliminary plan, yield equation/plan approval. "Preliminary Plan" refers to a preliminarily engineered sketch plan drawn to illustrate initial thoughts about a conceptual layout for open space lands, house sites, and street alignments. This is the stage where drawings are tentatively illustrated, before heavy engineering costs are incurred in the design of any proposed subdivision layout.

(5) Sitewalk. The Planning Board may schedule a mutually convenient date to walk the property with the applicant and site designer. The purpose of this visit is to familiarize town officials with the property's special features, and to provide an informal opportunity to offer guidance (or at least a response) to the applicant regarding the tentative location of the conservation land and potential house locations and street alignments

(6) Application Review. Four-Step Process. Each sketch plan or Conceptual Preliminary Plan shall follow a four-step design process, as described below. When the conceptual Preliminary Plan is submitted, applicants shall be prepared to demonstrate to the Planning Board that these four design steps were followed by their site designers in determining the layout of their proposed streets, houselots, and greenway lands. This process shall be accomplished during the first 30 days of the statutory review period for applications before the board.

(a) Designating the Open Space. During the first step, all potential conservation areas are identified and shall consist of wetlands, floodplains, slopes over 25%, and shall include identification of the most sensitive and noteworthy natural, scenic, and cultural resources on that remaining half of the property. The applicant shall locate the restricted open space using the location criteria contained in the Open Space Design Ordinance.

(b) Location of House Sites. During the second step, potential house sites are tentatively located. Because the proposed location of houses within each lot represents a significant decision with potential impacts on the ability of the development to meet the evaluation criteria contained above, subdivision applicants shall identify tentative house sites on the preliminary plan.

(c) Street and Lot Layout. The third step consists of aligning proposed streets to provide vehicular access to each house in the most reasonable and economical way. When lots and access streets are laid out, they shall be located in a way that avoids or at least minimizes adverse impacts on the Conservation Areas. To the greatest extent practicable, wetland

crossings and streets traversing existing slopes over 15% shall be strongly discouraged. Street connections shall generally be encouraged to minimize the number of new cul-de-sacs to be maintained by the town and to facilitate easy access to and from homes in different parts of the property. Where cul-de-sacs are necessary, those serving six or fewer homes may be designed with "hammer-heads" facilitating three-point turns. Cul-de-sacs serving more than six homes shall generally be designed with a central island containing indigenous trees and shrubs (either conserved on site or planted).

In situations where more formal, "neo-traditional," or village-type layouts are proposed, Steps Two and Three may be reversed, so that the location of house sites follows the location of streets and squares.

(d) Lot Lines. The fourth step is simply to draw in the lot lines (where applicable). These are generally drawn midway between house locations and may include L-shaped "flag-lots".

(7) Decisions. For each preliminary step the decision shall be in the form of a vote. Decisions that are made on limited submission of information, as contemplated by this development approach, shall not be binding if further information is discovered during the process that results in modifications to the result. The conditional and final approval shall be issued in accordance with RSA 676:3 and 676:4.